2003

Nebraska Summary: S434 New Holland TM 155

Nebraska Tractor Test Laboratory
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SUMMARY OF OECD TEST 2120–NEBRASKA SUMMARY 434
NEW HOLLAND TM155 DIESEL
18 SPEED

Location of Test: Silsoe Research Institute, Wrest Park, Silsoe, MK45 4HS, United Kingdom

Dates of Test: October 2003 to February 2004.

Manufacturer: CNH U.K. Ltd., Basildon, Essex, SS14 3AD, England

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.843 **Fuel weight** 7.02 lbs/gal *(0.8413 kg/l)* **Oil SAE** 10W30 **API service classification** CG-4 **Transmission and hydraulic lubricant** New Holland 134D fluid **Front axle lubricant** New Holland 134D fluid

ENGINE: Make CNH Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** 958431 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.40" x 5.00" *(111.8 mm x 127.0 mm)* **Compression ratio** 17.0 to 1 **Displacement** 456 cu in *(7480 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: Type front wheel assist **Serial No.** 170899B **Tread width** rear 60.2" *(1530 mm)* to 87.8" *(2230 mm)* front 61.4" *(1560 mm)* to 89.0" *(2260 mm)* **Wheelbase** 107.2" (*2723 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (6) range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 1.53 *(2.46)* second 1.84 *(2.96)* third 2.21 *(3.56)* fourth 2.66 *(4.28)* fifth 3.20 *(5.15)* sixth 3.55 (*5.72)* seventh 3.85 *(6.19)* eighth 4.28 *(6.88)* ninth 5.14 *(8.27)* tenth 6.18 *(9.94)* eleventh 7.43 *(11.96)* twelfth 8.94 *(14.38)* thirteenth 10.09 (*16.24)* fourteenth 12.13 *(19.53)* fifteenth 14.57 *(23.45)* sixteenth 17.52 *(28.20)* seventeenth 21.08 *(33.92)* eighteenth 25.35 *(40.79)* reverse 2.98 *(4.80)*, 3.59 *(5.78)*, 4.32 *(6.95)*, 5.18 *(8.34)*, 6.24 *(10.05)*, 7.51 *(12.08)* **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1969 engine rpm or 1000 rpm at 2120 engine rpm **Unladen tractor mass** 12920 lb *(5860 kg)*

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1038 rpm)					
131.6 *(98.1)*	2200	8.36 *(31.65)*	0.446 *(0.271)*	15.74 *(3.10)*	
Standard Power Take-off Speed (1000 rpm)					
133.6 *(99.6)*	2121	8.22 *(31.12)*	0.432 *(0.263)*	16.24 *(3.20)*	
Maximum Power (2 hours)					
133.8 *(99.8)*	2101	8.18 *(30.98)*	0.429 *(0.261)*	16.34 *(3.22)*	
VARYING POWER AND FUEL CONSUMPTION					
131.6 *(98.1)*	2200	8.36 *(31.65)*	0.446 *(0.271)*	15.74 *(3.10)*	Air temperature
117.1 *(87.3)*	2301	7.99 *(30.26)*	0.480 *(0.292)*	14.62 *(2.88)*	73°F *(23°C)*
88.1 *(65.7)*	2309	6.53 *(24.72)*	0.521 *(0.317)*	13.48 *(2.66)*	Relative humidity
59.3 *(44.2)*	2333	4.99 *(18.89)*	0.591 *(0.359)*	11.88 *(2.34)*	47%
29.9 *(22.3)*	2353	3.58 *(13.56)*	0.840 *(0.511)*	8.36 *(1.65)*	Barometer
-- --	2380	2.34 *(8.86)*	-- --	-- --	29.8" Hg *(100.8 kPa)*

Maximum Torque - 462.5 lb.-ft. *(627.1 Nm)* at 1251 rpm
Maximum Torque Rise - 47.2%
Torque rise at 1800 engine rpm - 23%

DRAWBAR PERFORMANCE
(Unballasted - Front Drive Engaged)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—8th(2B) Gear									
108.5 *(80.9)*	9935 *(44.2)*	4.09 *(6.59)*	2201	5.7	0.540 *(0.329)*	12.99 *(2.56)*	198 *(92)*	41 *(5)*	30.2 *(102.3)*
75% of Pull at Maximum Power—8th(2B) Gear									
86.4 *(64.4)*	7435 *(33.1)*	4.36 *(7.01)*	2305	4.3	0.615 *(0.374)*	11.42 *(2.25)*	196 *(91)*	45 *(7)*	30.2 *(102.2)*
50% of Pull at Maximum Power—8th(2B) Gear									
58.5 *(43.6)*	4960 *(22.1)*	4.42 *(7.11)*	2310	3.1	0.688 *(0.419)*	10.20 *(2.01)*	194 *(90)*	43 *(6)*	30.2 *(102.2)*
75% of Pull at Reduced Engine Speed—9th(3B) Gear									
86.4 *(64.4)*	7440 *(33.1)*	4.35 *(7.00)*	1918	4.4	0.540 *(0.329)*	12.99 *(2.56)*	198 *(92)*	43 *(6)*	30.2 *(102.1)*
50% of Pull at Reduced Engine Speed—9th(3B) Gear									
58.7 *(43.8)*	4970 *(22.1)*	4.43 *(7.13)*	1929	3.1	0.593 *(0.361)*	11.83 *(2.33)*	192 *(89)*	45 *(7)*	30.2 *(102.1)*

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
				1st(1A) Gear					
51.9 *(38.7)*	13915 *(61.9)*	1.40 *(2.25)*	2314	14.5	0.744 *(0.453)*	9.43 *(1.86)*	194 *(90)*	43 *(6)*	30.2 *(102.2)*
				2nd(2A) Gear					
61.8 *(46.1)*	13805 *(61.4)*	1.68 *(2.70)*	2306	14.3	0.733 *(0.446)*	9.57 *(1.89)*	196 *(91)*	43 *(6)*	30.2 *(102.3)*
				3rd(3A) Gear					
75.2 *(56.1)*	13780 *(61.3)*	2.05 *(3.30)*	2302	12.9	0.662 *(0.403)*	10.61 *(2.09)*	192 *(89)*	45 *(7)*	30.2 *(102.2)*
				4th(4A) Gear					
89.7 *(66.9)*	13625 *(60.6)*	2.47 *(3.98)*	2285	11.9	0.640 *(0.389)*	10.96 *(2.16)*	194 *(90)*	43 *(6)*	30.2 *(102.1)*
				5th(5A) Gear					
100.3 *(74.8)*	13060 *(58.1)*	2.88 *(4.64)*	2171	10.0	0.565 *(0.343)*	12.44 *(2.45)*	194 *(90)*	43 *(6)*	30.2 *(102.2)*
				6th(1B) Gear					
107.4 *(80.1)*	12385 *(55.1)*	3.25 *(5.24)*	2175	8.9	0.528 *(0.321)*	13.30 *(2.62)*	194 *(90)*	41 *(5)*	30.2 *(102.3)*
				7th(6A) Gear					
106.7 *(79.6)*	11670 *(51.9)*	3.43 *(5.52)*	2098	7.9	0.534 *(0.325)*	13.15 *(2.59)*	194 *(90)*	41 *(5)*	30.2 *(102.3)*
				8th(2B) Gear					
109.4 *(81.6)*	10565 *(47.0)*	3.88 *(6.25)*	2099	6.3	0.522 *(0.317)*	13.45 *(2.65)*	197 *(92)*	41 *(5)*	30.2 *(102.3)*
				9th(3B) Gear					
109.8 *(81.9)*	8715 *(38.8)*	4.73 *(7.61)*	2098	5.0	0.514 *(0.313)*	13.65 *(2.69)*	196 *(91)*	43 *(6)*	30.2 *(102.4)*
				10th(4B) Gear					
108.5 *(80.9)*	7050 *(31.4)*	5.77 *(9.29)*	2108	4.0	0.530 *(0.322)*	13.25 *(2.61)*	197 *(92)*	45 *(7)*	30.2 *(102.4)*
				11th(5B) Gear					
107.8 *(80.4)*	5795 *(25.8)*	6.98 *(11.23)*	2105	3.4	0.524 *(0.319)*	13.40 *(2.64)*	197 *(92)*	43 *(6)*	30.2 *(102.4)*
				12th(6B) Gear					
103.8 *(77.4)*	4640 *(20.6)*	8.39 *(13.51)*	2093	2.8	0.553 *(0.337)*	12.69 *(2.50)*	197 *(92)*	43 *(6)*	30.2 *(102.4)*
				13th(1C) Gear					
105.4 *(78.6)*	4150 *(18.5)*	9.52 *(15.33)*	2104	2.8	0.545 *(0.332)*	12.88 *(2.54)*	199 *(93)*	45 *(7)*	30.2 *(102.1)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Disengaged dB(A)	Front Wheel Drive Engaged dB(A)
At no load in 8th (2B) gear	76.0	75.0
Bystander	--	--

TIRES AND WEIGHT	Tested Without Ballast
Rear tires - No.,size, ply & psi*(kPa)*	Two 20.8R38; **;13 *(90)*
Front tires - No.,size, ply & psi*(kPa)*	Two 16.9R28; **;13 *(90)*
Height of Drawbar	21.3 in *(540 mm)*
Static Weight with operator- Rear	7925 lb *(3595 kg)*
- Front	5160 lb *(2340 kg)*
- Total	13085 lb *(5935 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2120** Nebraska Summary 434, September 17, 2004.

Leonard L. Bashford
Director

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DRAWBAR PERFORMANCE

(Unballasted - Front Drive Disengaged)

FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—8th (2B) Gear									
103.3 *(77.0)*	9825 *(43.7)*	3.94 *(6.34)*	2204	8.3	0.565 *(0.344)*	12.43 *(2.45)*	205 *(96)*	43 *(6)*	30.3 *(102.5)*
75% of Pull at Maximum Power—8th (2B) Gear									
83.4 *(62.2)*	7375 *(32.8)*	4.24 *(6.83)*	2302	5.5	0.569 *(0.346)*	12.33 *(2.43)*	201 *(94)*	46 *(8)*	30.2 *(102.4)*
50% of Pull at Maximum Power—8th (2B) Gear									
57.1 *(42.6)*	4915 *(21.9)*	4.36 *(7.02)*	2319	3.6	0.713 *(0.434)*	9.85 *(1.94)*	203 *(95)*	46 *(8)*	30.2 *(102.3)*
75% of Pull at Reduced Engine Speed—9th (3B) Gear									
83.1 *(62.0)*	7375 *(32.8)*	4.23 *(6.81)*	1911	5.5	0.536 *(0.326)*	13.10 *(2.58)*	196 *(91)*	48 *(9)*	30.2 *(102.3)*
50% of Pull at Reduced Engine Speed—9th (3B) Gear									
57.0 *(42.5)*	4915 *(21.9)*	4.35 *(7.00)*	1925	3.6	0.581 *(0.353)*	12.09 *(2.38)*	192 *(89)*	48 *(9)*	30.2 *(102.3)*

MAXIMUM POWER IN SELECTED GEARS

1st(1A) Gear									
40.4 *(30.2)*	10780 *(47.9)*	1.41 *(2.26)*	2339	13.8	0.828 *(0.477)*	8.95 *(1.76)*	203 *(95)*	50 *(10)*	30.2 *(102.2)*
2nd(2A) Gear									
48.1 *(35.9)*	10540 *(46.9)*	1.71 *(2.76)*	2328	12.4	0.758 *(0.461)*	9.26 *(1.82)*	205 *(96)*	50 *(10)*	30.2 *(102.2)*
3rd(3A) Gear									
57.5 *(42.9)*	10430 *(46.4)*	2.07 *(3.33)*	2309	11.1	0.679 *(0.413)*	10.34 *(2.04)*	203 *(95)*	50 *(10)*	30.2 *(102.2)*
4th(4A) Gear									
68.0 *(50.7)*	10230 *(45.5)*	2.49 *(4.01)*	2306	10.8	0.671 *(0.408)*	10.46 *(2.06)*	201 *(94)*	46 *(8)*	30.2 *(102.4)*
5th(5A) Gear									
81.7 *(60.9)*	10130 *(45.1)*	3.02 *(4.87)*	2303	10.0	0.635 *(0.386)*	11.07 *(2.18)*	207 *(97)*	50 *(10)*	30.2 *(102.2)*
6th(1B) Gear									
89.7 *(66.9)*	10025 *(44.6)*	3.36 *(5.40)*	2304	10.2	0.612 *(0.372)*	11.47 *(2.26)*	199 *(93)*	46 *(8)*	30.2 *(102.4)*
7th(6A) Gear									
95.2 *(71.0)*	9890 *(44.0)*	3.61 *(5.81)*	2281	9.8	0.604 *(0.368)*	11.61 *(2.29)*	199 *(93)*	46 *(8)*	30.2 *(102.4)*
8th(2B) Gear									
103.3 *(77.0)*	9825 *(43.7)*	3.94 *(6.34)*	2204	8.3	0.565 *(0.344)*	12.43 *(2.45)*	205 *(96)*	43 *(6)*	30.3 *(102.5)*
9th(3B) Gear									
108.2 *(80.7)*	8880 *(39.5)*	4.57 *(7.35)*	2098	7.0	0.526 *(0.320)*	13.35 *(2.63)*	203 *(95)*	50 *(10)*	30.2 *(102.2)*
10th(4B) Gear									
107.7 *(80.3)*	7180 *(31.9)*	5.62 *(9.05)*	2106	5.3	0.542 *(0.329)*	12.96 *(2.55)*	203 *(95)*	50 *(10)*	30.2 *(102.2)*
11th(5B) Gear									
107.8 *(80.4)*	5905 *(26.3)*	6.85 *(11.02)*	2106	4.1	0.534 *(0.325)*	13.15 *(2.59)*	201 *(94)*	41 *(5)*	30.5 *(102.5)*
12th(6B) Gear									
104.1 *(77.6)*	4700 *(20.9)*	8.30 *(13.36)*	2110	3.3	0.551 *(0.335)*	12.74 *(2.51)*	201 *(94)*	41 *(5)*	30.5 *(102.5)*
13th(1C) Gear									
108.9 *(81.2)*	4365 *(19.4)*	9.36 *(15.06)*	2104	3.3	0.522 *(0.317)*	13.45 *(2.65)*	201 *(94)*	43 *(6)*	30.5 *(102.5)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II
Quick Attach: None
Maximum Force Exerted

Through Whole Range:	7485 lbs *(33.3 kN)* (one boost cylinder)
	9035 lbs *(40.2 kN)* (two boost cylinders)
i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	3020 psi *(208 bar)*
ii) Pump delivery rate at minimum pressure:	32.1 GPM *(121.7 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	27.9 GPM *(105.7 l/min)*
Delivery pressure:	2540 psi *(175 bar)*
Power:	41.3 HP *(30.8 kW)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. *(bar)*	2960 *(204)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	150 *(65)*
Location:	hydraulic sump
Category:	II
Quick attach:	none

SAE Static Test—System pressure 2610 psi *(180 Bar)* (one boost cylinder)

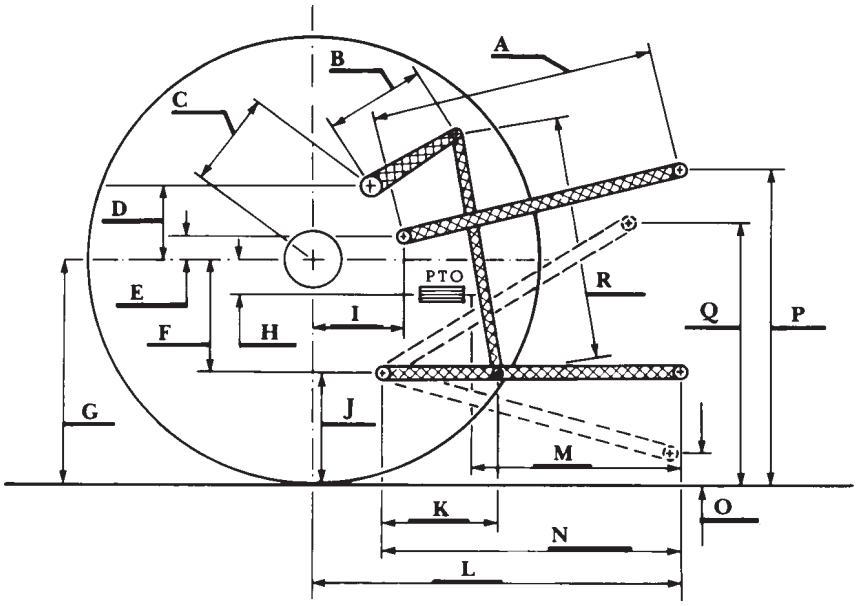
Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	15.7 *(400)*	22.4 *(570)*	29.7 *(755)*	37.0 *(940)*
Lift force on frame lb	13490	14075	14095	13890	12295
" " " " " " *(kN)*	*(60.0)*	*(62.6)*	*(62.7)*	*(61.8)*	*(54.7)*

SAE Static Test—System pressure 2610 psi *(180 Bar)* (two boost cylinders)

Hitch point distance to ground level in. *(mm)*	9.5 *(240)*	15.4 *(390)*	23.8 *(605)*	31.5 *(800)*	39.6 *(1005)*
Lift force on frame lb	16525	17285	17760	17420	16545
" " " " " " *(kN)*	*(73.5)*	*(76.9)*	*(79.0)*	*(77.5)*	*(73.6)*

HITCH DIMENSIONS AS TESTED—NO LOAD
(2 boost cylinders)

	OECD test		SAE test	
	inch	*mm*	inch	*mm*
A	29.7	*754*	29.9	*760*
B	9.1	*230*	9.1	*230*
C	15.6	*395*	15.6	*395*
D	14.3	*363*	14.3	*363*
E	8.2	*208*	10.8	*275*
F	9.8	*250*	9.8	*250*
G	33.6	*855*	33.6	*855*
H	0.7	*17*	0.7	*17*
I	17.9	*455*	16.9	*430*
J	23.8	*605*	23.8	*605*
K	17.1	*435*	19.8	*504*
L	47.0	*1194*	47.0	*1194*
M	23.3	*592*	23.3	*592*
N	38.3	*974*	38.3	*974*
O	7.8	*198*	9.4	*240*
P	47.8	*1215*	43.9	*1115*
Q	36.3	*923*	35.0	*890*
R	29.5	*750*	31.0	*787*



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